preceding paragraph, if the reed 27 (Fig. 9) be adjusted so as to press only lightly against the back-spring 36 and the coil be energized, the reed will be attracted as soon as the intensity of the field traversing that reed has become sufficient to overcome the reed tension. If the screw 34 be advanced the strain upon the reed will be increased in proportion to its displacement from its point of rest but the field intensity will be increased in like proportion with the result that neither the lag nor the intensity of the spark is changed in any way. The consequence is that an engine operator can adjust the screw 34 to his heart's content without interfering with the regularity of sparking the various cylinders. In addition the greater actual intensity of the field permits the employment of a reed of greater stiffness which will make better contact between the points 28 and 37. Of course, if the angle of the reed shank be changed, either by bending the same or by changing the angle of its support, the lag of the spark will be changed since the absolute intensity of the field necessary to displace it will have been changed. This adjustment, as already explained, is effected by moving the stud 51 and is a delicate operation.

It is impossible to lay down any dimensions or mode of manufacture which will give in all cases the desired result as the inclination of the lines of force at each point depends to some extent upon the length and dimensions of the core, the shape and arrangement of the windings, and the intensity of magnetization. Also the stiffness of the spring depends upon many factors as is well known. It is possible, however, to obtain such a balance between all these factors that both the spark lag and the spark intensity will be substantially unaffected by the wearing away of the points or the adjustment of the screw 34.

The amount of magnetization of the coil is influenced to some extent by the amount of travel of the back spring, since this spring follows the reed for an appreciable distance and maintains contact for a short time after the field intensity has become sufficient to attract the reed. This, however, is always an effect of the back spring and is entirely independent of the actions now disclosed and claimed.

Another and minor feature of my invention relates to the construction of the plate 13. Hitherto a flat metal plate has generally been employed with various joints and an awkward method of securing the same. According to my invention I form this plate of thin sheet metal by pressing it to proper form, as shown in Fig. 4. This plate preferably consists of a flat sheet having its marginal portion bent laterally to form depending flanges 54 and having the portion adjacent to the core 10 bulged outwardly as at 55 to form a hollow open ended boss. This boss is made of sufficient size to receive a ring 56 of rubber or like insulating material. One side of the plate is completely severed by a slot 57 running from the boss 15 to the edge of the plate so as to prevent the formation of eddy currents.

While I have described my invention in considerable detail and particularly the construction of one form of induction coil with which the same may be employed it will be understood that this description is not intended to form a limitation upon me and that the meaning and scope of my invention is to be ascertained only from the claims hereto annexed as interpreted in the light of the prior art.

Having thus described my invention, what I claim is:—

1. In an ignition coil, the combination, with a soft iron core having windings thereon, of a flexible reed mounted adjacent to said core, and movable toward and from the same, the stiffness of said reed being substantially proportional to the distance-gradient of the field in which it is supported.

2. In an ignition coil, the combination, with a soft iron core having primary and secondary windings thereon, of a flexible reed having a head of magnetic material mounted adjacent to the end of said core and vibratable toward and from the same, the distance of the primary windings from the end of the core being so chosen relatively to the stiffness of the reed that the change in field intensity along the core axis shall be substantially proportional to the change in restoring force of said reed throughout the entire range of ordinary adjustment of said reed, and means for changing the angle between the reed-shank and the core-axis.

3. In an ignition coil, the combination, with a soft iron core having windings thereon and a flexible reed mounted adjacent to said core and having a head of magnetic material vibratable toward and from said core, of a contact point carried by the side of said reed away from said core, a second contact point independent of said reed and adapted to engage said first point, and means for moving said second point toward and from said core, said windings being so arranged with relation to the end of said core that the number of lines of magnetic force piercing said head shall be substantially proportional to the pressure of said contact points against each other throughout substantially all of the range of adjustment of said second contact point.

4. In an ignition coil, the combination, with a soft iron core having magnetizing windings thereon and a flexible reed hav-